



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/525,925

02/25/2005

Masatomo Kurata

09812.0480-00000

2833

22852

7590

01/05/2009

FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER
LLP

901 NEW YORK AVENUE, NW
WASHINGTON, DC 20001-4413

EXAMINER

SNYDER, ADAM J

ART UNIT

PAPER NUMBER

2629

MAIL DATE

DELIVERY MODE

01/05/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/525,925	Applicant(s) KURATA, MASATOMO	
	Examiner Adam J. Snyder	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 4 and 5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4, and 5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/14/2008 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 1, 2, 4, and 5** are rejected under 35 U.S.C. 103(a) as being unpatentable over Foxlin (US 2003/0023192 A1) in view of Ishibashi et al (US 5,841,409).

Claim 1, Foxlin (Fig. 1, 2A, 2B, and 4C) discloses a head-tracking method (Paragraph [0012]) for detecting three-dimensional movement of the head using three axes as points of reference, an x-axis extending in a right-to-left direction of the head, a y-axis extending in a front-to-back direction of the head, and a z-axis perpendicularly

Art Unit: 2629

traversing a horizontal surface of the head (wherein figures 2A and B shows X, Y, and Z axis movement of the head that is detected), the method comprising:

calculating (106) a yaw angle (Paragraph [0043]; wherein angular rate sensors output is integrated to give angular position; for example yaw angle) from an integral value of an output of a gyro sensor (204y; Paragraph [0044]), the yaw angle representing an angle rotating about the z-axis (wherein figure 2A shows a gyro used for element 204y which is used to calculate the yaw angle around the z-axis);

calculating (110) both a pitch angle and a roll angle (Paragraph [0072]) from an output of a two-axis tilt sensor (Paragraph [0052]), the pitch angle being formed between the z-axis and the y-axis (wherein head is tilted front or back; Paragraph [0052]), and the roll angle being formed between the z-axis and the x-axis (wherein head is tilted left or right; Paragraph [0052]); and

correcting (108) the yaw angle calculated (D) from the output of the gyro sensor (F) using the calculated pitch angle and roll angle (S; 478, 480, 482, and 484; wherein Foxlin is reducing drift which can be in yaw, pitch, and roll direction).

Foxlin does not expressly disclose operating a reset switch on a head-tracking device, a position of the head when the reset switch is operated being set as a reference position;

detecting the movement of the head from the reference position based on the outputs of the three-dimensional sensors.

Ishibashi (Fig. 7 and 8) discloses operating a reset switch (136) on a head-tracking device (Fig. 10), a position of the head when the reset switch (136) is operated

Art Unit: 2629

being set as a reference position (Col. 7, Line 58-Col.8, Line 7; Col. 6, Lines 23-45; wherein operation of the reset switch which performs initialization and sets a reference position (i.e. step #25));

detecting the movement of the head from the reference position based on the outputs of the three-dimensional sensors (Col. 6, Lines 47-52; steps #30-#75).

At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to modify Foxlin's head-tracking by integrating reset switch, as taught by Ishibashi, so to use head-tracking with a reset switch for providing an HMD which correctly detects the direction of the user's head even after a long period of use for varying the displayed image according to the detected direction (Col. 2, Lines 16-19).

Claim 4, this differs from claim 1 in that it states "the pitch angle and the roll angle from an angular velocity output of the tilt sensor".

Foxlin discloses the pitch angle and the roll angle (Paragraph [0072]) from an angular velocity output of the tilt sensor (Paragraph [0052]).

Claims 2 and 5, Foxlin (Fig. 4C) discloses wherein a period for calculating the yaw angle from the output of the gyro sensor (460, 462, 464, 466, 468, and 470) is shorter (Paragraph [0059]; wherein calculated tilt sensors after $\frac{1}{4}$ seconds) than a period for calculating the pitch angle and the roll angle (Paragraph [0072]) from the output of the tilt sensor (Paragraph [0052]).

Response to Arguments

4. Applicant's arguments with respect to claims 1, 2, 4, and 5 have been considered but are moot in view of the new ground(s) of rejection.

In view of arguments, the references of Foxlin (US 2003/0023192 A1) and Ishibashi et al (US 5,841,409) have been used for new ground rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adam J. Snyder whose telephone number is (571) 270-3460. The examiner can normally be reached on M-F (8:30am-5pm) EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chanh Nguyen can be reached on (571) 272-7772. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

Application/Control Number: 10/525,925

Page 6

Art Unit: 2629

USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/AJS/
Examiner, Art Unit 2629
12/23/2008

/Chanh Nguyen/
Supervisory Patent Examiner, Art
Unit 2629